TEST RESULTS OF GRADATION FOR WMM

Lab ID	:	**CP-RW-2018-04-12-02** **Date: 13-04-18**
Customer	:	Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.
Address	:	Project Sub Division, BBMP, Bangalore.
Project Name	:	Widening of Doddabommasandra Main Road in Ward No.10
Agency	:	M/s.Prashanth Road Infra Project & Developer Pvt.Ltd.
Customer Reference	:	BBMP/BZ/EE(PR)/WO/01/15-16
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	12-04-18
Sample ID No	:	2018-04-12-02/01
Type of Mix	:	WMM (Wet Mix Macadam)
Date of test	:	12-04-18
Oven Dry Weight	:	11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	400	400	3.6	96.4	95-100
22.4	2800	3200	29.1	70.9	60-80
11.2	1600	4800	43.6	56.4	40-60
4.75	2200	7000	63.6	36.4	25-40
2.36	500	7500	68.2	31.8	15-30
0.6	1300	8800	80.0	20.0	8-22
0.075	800	9600	87.3	12.7	0-5

Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore

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TEST RESULTS OF GRADATION FOR WMM

Lab ID	:	**CP-RW-2018-04-14-02**	**Date: 16-04-18**
Customer	:	Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.	
Address	:	Project Sub Division, BBMP, Bangalore.	
Project Name	:	Widening of Doddabommasandra Main Road in Ward No.10	
Agency	:	M/s.Prashanth Road Infra Project & Developer Pvt.Ltd.	
Customer Reference	:	BBMP/BZ/EE(PR)/WO/01/15-16	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	14-04-18	
Sample ID No	:	2018-04-14-02/01	
Type of Mix	:	WMM (Wet Mix Macadam)	
Date of test	:	14-04-18	
Oven Dry Weight	:	11000 Grams	

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	200	200	1.8	98.2	95-100
22.4	2000	2200	20.0	80.0	60-80
11.2	2700	4900	44.5	55.5	40-60
4.75	1300	6200	56.4	43.6	25-40
2.36	1300	7500	68.2	31.8	15-30
0.6	400	7900	71.8	28.2	8-22
0.075	1800	9700	88.2	11.8	0-5

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Bangalore

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR DENSE BITUMINOUS MACADAM

Lab ID	:	**CP-RW-2018-04-16-01**	**Date: 18-04-18**
Customer	:	Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.	
Address	:	Project Sub Division, BBMP, Bangalore.	
Project Name	:	Widening of Doddabommasandra Main Road in Ward No.10	
Agency	:	M/s.Prashanth Road Infra Project & Developer Pvt.Ltd.	
Customer Reference	:	BBMP/BZ/EE(PR)/WO/01/15-16	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	16-04-18	
Sample ID No	:	2018-04-16-01/01	
Type of Mix	:	DBM (Dense Bituminous Macadam)	
Date of test	:	16-04-18	

Table 500-6 : Physical Requirements fo Coarse Aggregate for Dense Bituminous Macadam

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	8.5	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	11.9		
Strength	Aggregate Impact Value	20.8	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.58	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.28	Maximum 2%	IS:2386 Part III

Asst. Executive Engineer Project Division Yelahanka Zone Bangalore

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TEST RESULTS OF GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2018-04-16-01**	**Date: 18-04-18**
Customer	:	Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.	
Address	:	Project Sub Division, BBMP, Bangalore.	
Project Name	:	Widening of Doddabommasandra Main Road in Ward No.10	
Agency	:	M/s.Prashanth Road Infra Project & Developer Pvt.Ltd.	
Customer Reference	:	BBMP/BZ/EE(PR)/WO/01/15-16	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	16-04-18	
Sample ID No	:	2018-04-16-01/01	
Type of Mix	:	DBM-Plant (Dense Bituminous Macadam)	
Date of test	:	16-04-18	
Weight of Sample	:	5000 Grams	

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10 (grading -2)
37.5	0	0	0.0	100.0	100
26.5	172	172	3.4	96.6	90-100
19	1013	1185	23.7	76.3	71-95
13.2	520	1705	34.1	65.9	56-80
4.75	1050	2755	55.1	44.9	38-54
2.36	810	3565	71.3	28.7	28-42
0.3	994	4559	91.2	8.8	7-21
0.075	272	4831	96.6	3.4	2-8
PAN	169	5000	0.0	0.0	0

Asst. Executive Engineer, Project Division, Yelahanka Zone, Bangalore

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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2018-04-16-01**	**Date: 18-04-18**
Customer	:	Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.	
Address	:	Project Sub Division, BBMP, Bangalore.	
Project Name	:	Widening of Doddabommasandra Main Road in Ward No.10	
Agency	:	M/s.Prashanth Road Infra Project & Developer Pvt.Ltd.	
Customer Reference	:	BBMP/BZ/EE(PR)/WO/01/15-16	
Source of Sample	:	Hot Mix Plant, Bangalore	
Sample Condition	:	Satisfactory	
Date of Receipt	:	16-04-18	
Sample ID No	:	2018-04-16-01/01	
Type of Mix	:	DBM (Dense Bituminous Mecadam)	
Date of test	:	16-04-18	

The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.29	11.82	9KN(Min)
2	Marshal flow at 60°C, mm	3.54	3.87	2-4
3	Percent air Voids	4.56	4.17	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.54	14.76	13-15
5	Percent Voids filled with Bitumen(VFB %)	68.98	70.28	65-75
6	Density, g/cc	2.42	2.40	–

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID : **CP-RW-2018-04-16-01** **Date: 18-04-18**

Customer : Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.

Address : Project Sub Division, BBMP, Bangalore.

Project Name : Widening of Doddabommasandra Main Road in Ward No.10

Agency : M/s.Prashanth Road Infra Project & Developer Pvt.Ltd.

Customer Reference : BBMP/BZ/EE(PR)/WO/01/15-16

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 16-04-18

Sample ID No : 2018-04-16-01/01

Type of Mix : DBM(Dense Bitumnous Macadam)

Date of test : 16-04-18

Type of Binder : 60/70

% of Binder Used : 5.0%

Weight of Aggregate : 200.0 gm

Weight of Binder : 10.0 gm

Temperature of water bath : 40°C

Asst. Executive Engineer Project Division Yelahanka Zone Bangalore

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID : **CP-RW-2018-04-17-01** **Date: 19-04-18**

Customer : Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.

Address : Project Sub Division, BBMP, Bangalore.

Project Name : Widening of Doddabommasandra Main Road in Ward No.10

Agency : M/s.Prashanth Road Infra Project & Developer Pvt.Ltd.

Customer Reference : BBMP/BZ/EE(PR)/WO/01/15-16

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 17-04-18

Sample ID No : 2018-04-17-01/01

Type of Mix : BC (Bituminous Concrete)

Date of test : 17-04-18

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Particle Shape	Flakiness Index	12.1	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.4		
Strength	Aggregate Impact Value	23.4	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.16	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	1.12	Maximum 2%	IS:2386 Part III

Assl Executive Engineer
Project Division
Yelahanka Zone
Bangalore

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TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2018-04-17-01**	**Date: 19-04-18**
Customer	:	Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.	
Address	:	Project Sub Division, BBMP, Bangalore.	
Project Name	:	Widening of Doddabommasandra Main Road in Ward No.10	
Agency	:	M/s.Prashanth Road Infra Project & Developer Pvt.Ltd.	
Customer Reference	:	BBMP/BZ/EE(PR)/WO/01/15-16	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	17-04-18	
Sample ID No	:	2018-04-17-01/01	
Type of Mix	:	BC-Plant (Bituminous Concrete)	
Date of test	:	17-04-18	
Oven Dry Weight	:	5000 Grams	

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	200	200	4.0	96.0	90-100
9.5	750	950	19.0	81.0	70-88
4.75	1150	2100	42.0	58.0	53-71
2.36	450	2550	51.0	49.0	42-58
1.18	400	2950	59.0	41.0	34-48
0.6	550	3500	70.0	30.0	26-38
0.3	550	4050	81.0	19.0	18-28
0.15	150	4200	84.0	16.0	12-20
0.075	600	4800	96.0	4.0	4-10
PAN	200	5000	100	0.0	0

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Project Division
Yelahanka Zone
Bangalore

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2018-04-17-01** **Date: 19-04-18**
Customer	:	Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.
Address	:	Project Sub Division, BBMP, Bangalore.
Project Name	:	Widening of Doddabommasandra Main Road in Ward No.10
Agency	:	M/s.Prashanth Road Infra Project & Developer Pvt.Ltd.
Customer Reference	:	BBMP/BZ/EE(PR)/WO/01/15-16
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	17-04-18
Sample ID No	:	2018-04-17-01/01
Type of Mix	:	BC(Bitumenous Concrete)
Date of test	:	17-04-18

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

Asst. Executive Engineer Project Division Yelahanka Zone Bangalore

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	96.2	3.8	97.1	Minimum Retained Coating 95%
2	96.9	3.1		
3	98.3	1.7		

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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2018-04-17-01** **Date: 19-04-18**
Customer	:	Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.
Address	:	Project Sub Division, BBMP, Bangalore.
Project Name	:	Widening of Doddabommasandra Main Road in Ward No.10
Agency	:	M/s.Prashanth Road Infra Project & Developer Pvt.Ltd.
Customer Reference	:	BBMP/BZ/EE(PR)/WO/01/15-16
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	17-04-18
Sample ID No	:	2018-04-17-01/01
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	17-04-18

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	12.47	12.73	10KN(min)
2	Marshal flow at 60°C, mm	4.57	3.03	2-4
3	Percent air Voids	4.78	5.77	3-5
4	Percent Voids in mineral Aggregate(VMA %)	15.44	14.75	13-15
5	Percent Voids filled with Bitumen(VFB %)	75.09	73.59	65-75
6	Density, g/cc	2.26	2.25	–

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